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DATA PREPARATION FOR INTERACTIVE ELECTRONIC PROGRAM GUIDES

Janet Greco

Infomedia S.A., Luxembourg

ABSTRACT

This paper defines the role of a clearing house providing TV listings to Electronic Program Guide service providers. It provides an overview of the work that Infomedia S.A. does in terms of collection, processing, formatting and consistently applying program genre classifications to listings across a group of channels. The clearing house acts as the filter through which the data can be delivered in many different user-specific formats, ranging from print publishers' needs to digital Electronic Program Guide providers, including DVB Service Information. What services do such companies provide and what standards exist or still need to be defined? How do they assist service providers with the DVB-defined "Service Information" data stream for EPGs? And how does the concept translate also to other types of information-based interactive applications?

INTRODUCTION

Databases are obviously the foundation for all interactive applications. Yet many people involved in the creation of Electronic Program Guides (EPGs) for digital and other transmission methods assume that the data for EPGs is readily available in a consistent database format for easy inclusion into the DVB "Service Information" data stream.

The work involved in getting the broadcasters' original schedule listings into a consistent database format is actually a considerable one. And since EPGs impose a new requirement to provide late program changes to the data stream in "real-time" - there is still much work to be done.

Infomedia has been in the market of preparing and distributing TV program listings for the past five years. The idea behind Infomedia was simple from the start. We aimed to provide a centralised electronic database for publishers and others who needed to access updated TV program listings.

The service we provide is and always has been available online, and has provided data formats tailored to our clients needs.

+ Electronic and centralised database
+ Focus - European TV listings and media news
+ Online - Accessed electronically by publishers
+ Formats - customised to clients' needs

The purpose of this paper is to acquaint you with the work that we do, in order to highlight the realities of how the collection and data processing work is done. The idea is to hopefully give you a better sense of the detail involved in the creation of EPGs or Electronic Program Guides.

BACKGROUND

When I founded Infomedia five years ago, it was obvious to me that the way to work was not by hiring an army of typists to collect and re-key the data. But, to access, somehow, an "electronic" file which had already been prepared in the marketing department of a TV channel.

When I was working in TV, most channels sent out printed guides by mail, and program changes by fax or telex. It was a costly and tedious operation.

Over the course of the last five years, things have obviously changed quite a lot. For one thing, we increased the number of channels we processed sixfold to now around 200 European channels.

But the most notable trend we witnessed during the early nineties, was the implicit acceptance by the channels that electronic distribution was *of course* the way to distribute listings. This became clear as the number of electronic bulletin boards which were set up by individual channels increased.

Bulletin boards eased the workload of the channels, but didn't necessarily help the end user - though it was a start. It had previously been difficult enough to empty and retype all the bulky envelopes arriving with the schedules, and manage the late changes arriving by fax. Now, professional users were expected to separately access individual e-mail or electronic bulletin board systems, with separate passwords, and entry routines, for every channel which they needed to publish. Moreover, different electronic file formats were provided, and, the content quality different from channel to channel.

Professional end-users include:
+ newspapers and magazines
+ press agencies
+ consumer online and internet guides
+ cable operators' teletext services
+ digital electronic program guides

Infomedia's work is focused on the preparation of standardised data. The work we do enables the output of customised formats for a collective group of channels - a process which we have learned to automate quite expertly. We provide the raw material for the creation of all types of TV guides.

DATA COLLECTION

This process involves collecting, processing and formatting TV program data which is provided to us by the channels in many different ways.

+ floppy disks
+ modem
+ e-mail
+ online

As a listings company, we are unique in that more than 80% of the data which we collect arrives, in the first place, in electronic form. But every electronic file received, from all the various sources, arrives in a different format.

+ 80% arrives electronically
+ at least 25 different incoming software formats
+ different data content for each channel
+ different presentation formats for each channel
+ no database files - only flat text files

Even though Infomedia receives an enormous number of electronic files, our work isn't magically simplified as a result. We soon realised that we would get a multitude of different file formats, depending on the different types of softwares in use at each of the channels.

In addition, almost every channel is providing to us flat text files, or files in strange formats (like spreadsheets), rather than database format files. In addition, the content and data presentation formats vary widely. But our function, as a clearing house, would still be required even if every channel was able to send us a more structured database file, with all the fields completely and accurately filled in.

Some Database Fields

+ Date: scheduled date of the program
+ Time: expressed as 24 hour clock
+ Title: scheduled title
+ Synopsis: description of the contents of the program, excluding:
+ Country: country of production
+ Year of production: year of production
+ Original Language Title: actual original language title
+ Episode Title: scheduled episode title
+ Original Episode Title: actual original language title
+ VPS: VPS programming time and date
+ Live: Yes/No
+ Stereo: Yes/No (excludes two-tone)
+ Two-tone (Zweikanalton); Yes/No
+ Encryption: Yes/No - program is encrypted
+ Language: language of program
+ First showing: Yes/No - is first appearance on channel
+ Last showing: Yes/No - last appearance on channel
+ Pay per view: Yes/No - scheduled event is p-p-v
+ Is umbrella: Yes/No - is "umbrella" title for a group of programs
+ Channel rating: quality rating assigned by the channel
+ Channel category: genre of program, according to the channel
+ Actor List: list of actors (without roles)

When we got to know all the different ways of producing the data in-house at the channels, we knew that the format, field lengths, content, and types of databases used would always be different from one company to the next, and that rigid quality control would always be in order.

UNIVERSAL GENRE CLASSIFICATION SYSTEM (UGCS)

Another reason why a "clearing house" is needed is to play the gatekeeper role is for the consistent application of genres across all channels.

+ consistently applied genres
+ conversion tables
+ maximum flexibility
+ language and country specific

In 1993 Infomedia began its first detailed research into the area of program genre classifications, knowing all too well that a universal standard did not yet exist. So we created one ourselves.

Our Universal Genre Classification System was the result of culling together different industry attempts, by a wide range of European media institutions, to create a system that would work on a European level.

Given that each national culture has its own peculiarities for describing its program, we created instead an internal standard which we apply to all the programs in our database. So in the same way that we standardise the data first, before offering customised outputs, we apply our own internal classification standard to every program.

UGCS - Three levels of classification

+ "Category" (ie; factual, advertising, fiction)
+ "Type" (ie; news, magazine, film, series)
+ "Content" (ie, adult, satire, jazz, politics, bowling)

UGCS breaks down every program into three levels of description. The first, "category" is divided into 12 headings. The second, "Type", is directly relevant to the first category, while the third level, "content" is divided into hundreds of content descriptors.

What is unique about this structure is that we can output the genre in any language, or group any combination of content, to get the results our clients want.

Conversion tables for language-specific output

We do this by programming special output formats, using conversion tables.

Example
+ Category called "Action Film" is required by client
+ Language of genre is Dutch
Conversion table: If:"Category"="Fiction", "Type"="Film", and "Content"=Action+Adventure+ Disaster+Karate+War, Then Output="actiefilm".

Once set up, the recipient can automatically retrieve the data in the output format of their choice.

With UGCS, we ensure that the data can be interactively searched, with consistent results.

UPDATES IN REAL TIME

EPGs impose a new requirement to provide late program changes to the data stream in "real-time".

As explained earlier, the main source of our data from within the channels is still the press office. This is the department which has always traditionally been responsible for the dissemination of the detailed program schedules.

Often, the basic information - time and titles only - are transferred to the press departments from scheduling in order that they may create the detailed printed guide - with actors and directors names, and so on.

Today in cases where an individual channel has an electronic distribution service, or even an Internet site, the files are periodically refreshed, but with different frequencies, depending on the individual channel.

A clearing house for listings, takes a centralised approach to updating the schedules. By offering a constantly updated centralised source, we eliminate the need for individual publishers to replicate the updating work.

Real time updates are a big challenge for us as well as for the channels. The traditional press never needed updates in 'real-time'. But for EPGs such updates are critical. We are not aware of any general broadcaster in Europe that is really prepared for the transmission of 'real-time' updates, appropriately formatted for EPGs.

That is a challenge we are exploring with the channels, to see if there is a better way to capture a data stream, which can be processed into the recipient's requested format, classified and converted into the requested genre, and transmitted, appropriately coded in DVB-Service Information (SI) format.

For digital broadcasters, the transmission of the basic SI now/next data stream is a mandatory requirement. The technical people involved in the creation of the SI standard naturally assumed that databases would feed the SI and extended SI data streams. But the consistent data streams are not readily available. It is the work of Infomedia to prepare standardised database format files for Electronic Program Guides.

The need for consistent data is obvious, especially to anyone well acquainted with databases. But the diversity of sources raises a profound question for all types of interactive, and data broadcasting, applications. Where is the data coming from?

Despite our progress, there is still much work to be done. We have a lot of channels on the way, and technologies such as the V-chip are going to further require standardisation and codification of data.

What kinds of companies will collate and standardise the content and presentation formats? Electronic data clearing houses, such as Infomedia, will. But the channels have to play their part too.

Effective program promotion is critical to the commercial success of all the new channels, especially in this digital age. And it is up to the channels as well as the digital bouquet providers to promote their programs. But, ultimately, it is the individual channel who is at risk if accurate, complete information is not available in the collective data stream.

The channels must make it easier for everyone who needs this information, to get it. There are many other kinds of TV guides such as printed magazines and newspapers, which are, and have always been, thriving here in Europe.

But there are a variety of electronic TV guides too: on-screen cable TV guides, teletext guides, internet TV Guides, and "EPGs" - most talked about as part of digital bouquets, but also, the digital terrestrial ones.

All of these different TV Guides require a standardised, consistent data stream of listings, and EACH digital EPG requires a differently formatted data stream based on DVB-SI.

So the clearing house role has an important future, not just for program listings, and their attendant photos and videos, but for all kinds of information-based interactive, and data broadcasting, applications.

But right now, it's complicated enough just to collect and process the text, even with all our automation routines.

Infomedia has a lot more work ahead, but we are in a unique position to clarify some of the more detailed aspects of the data distribution, genre classification, and updating process.

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Data preparation for interactive electronic program guid

- *Greco, J.*
Infomedia SA, Luxembourg
This paper appears in: **Broadcasting Convention, International (Conf. Pub 428)**
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Index Terms:
interactive electronic program guides; data preparation; clearing house; TV list service providers; Infomedia; program listing collection; program listing proces program listing formating; TV channels; user-specific formats; print publishers electronic program guide providers; DVB service information; standards; bullet digital television

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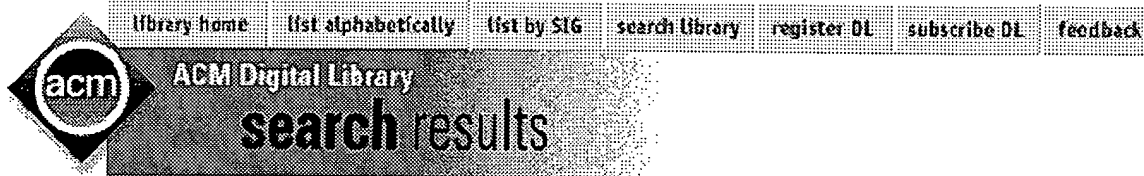**Authors:**

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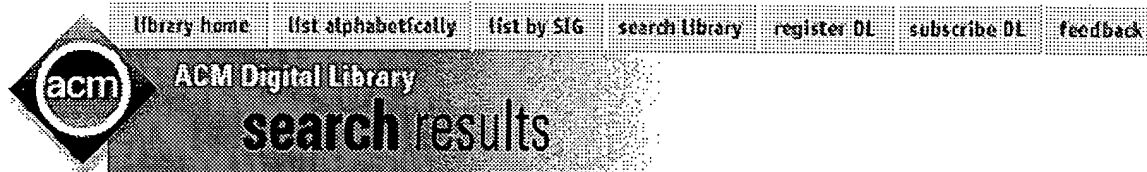◉ all names ○ any name ○ expression   (☐ soundex)

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